

Guix, GuixSD, and getting to 1.0

Ludovic Courtès

GNU Hackers Meeting
Knüllwald-Niederbeisheim, August 2017

agenda

- ▶ Seriously, who cares?
- ▶ What's new?
- ▶ What's missing?
- ▶ What's hot?!

```
$ guix package -i gcc-toolchain coreutils sed grep
```

```
...
```

```
$ eval 'guix package --search-paths'
```

```
...
```

```
$ guix package --manifest=my-software.scm
```

```
...
```



```
(operating-system
  (host-name "schememachine")
  (timezone "Europe/Berlin")
  (locale "de_DE.utf8")
  (bootloader (grub-configuration (device "/dev/sda")))
  (file-systems (cons (file-system
                        (device "my-root")
                        (title 'label)
                        (mount-point "/")
                        (type "ext4"))
                      %base-file-systems))
  (users (cons (user-account
                  (name "alice")
                  (group "users")
                  (home-directory "/home/alice"))
                %base-user-accounts))
  (services (cons* (service dhcp-client-service-type)
                    (service openssh-service-type
                              (openssh-configuration
                               (port-number 2222)))
                    %base-services)))
```

So, is it relevant?

spoiler: yes it is!

1. transactional, per-user package manager

2. software environment manager

- ▶ like virtualenv, “modules”, Vagrant, Docker, etc.

3. VM/container provisioning tool

- ▶ like Dockerfiles, but higher-level

4. OS deployment tool

- ▶ (almost) like Ansible, Chef, Puppet, Propellor, etc.
- ▶ ... and kinda like FreedomBox, Internet Cube/YunoHost

What's new?

GuixSD surely works for you now!
:-)

UEFI, LUKS on root, GNOME, 73 services, etc.

6,000 packages,
75% bit-reproducible

... and getting better

```
$ guix pack guile emacs geiser
```

```
...
```

```
/gnu/store/...-pack.tar.gz
```



and also...

- ▶ Guix on **aarch64**
- ▶ **containerized** system services
- ▶ **multiple bootloader** support
- ▶ guix system disk-image supports **ISO 9660**
- ▶ **Git integration** for guix pull
- ▶ MinGW, PowerPC, and Alpha (!) **cross-compilation targets**
- ▶ ...

updating the list of substitutes...

berlin.guixsd.org

berlin.guixsd.org

Thank you, Max Delbrück Center & Ricardo!

What's missing for 1.0?

#1: faster guix pull,
authenticated commits

#2: stable, self-hosted
infrastructure: Cuirass, etc.

#3: performance & UI improvements

#4: fewer glitches in our workflow...

- ▶ merge core-updates more quickly...
- ▶ **big set of updates** frowned upon (GHC, Perl, Python, ...)
- ▶ tame the **patch & bug queues**
- ▶ **security updates** need more people
- ▶ **build farm admin** needs more automation
- ▶ ...

What's hot?!

high-performance computing (HPC)

high-performance computing (HPC)

- ▶ better Guix setups on clusters
- ▶ better performance
- ▶ **reproducible** environments
- ▶ **Guix Workflow Language** (Roel Janssen)

distributed Guix & “GuixOps”

distributed Guix & “GuixOps”

- ▶ `GUIX_DAEMON_SOCKET=ssh://host.example.org`
- ▶ + **remote code evaluation** through Guile-SSH
- ▶ = `guix system reconfigure --remote=host ?`

- ▶ **the potluck** (Alex's talk tomorrow!)
- ▶ **GuixSD on ARM?** (Mathieu's talk today!)
- ▶ `bootstrappable.org` & Mes (Ricardo's talk tomorrow!)
- ▶ **GuixSD ncurses installer** (John's FOSDEM talk)
- ▶ **build daemon written in Guile** (reepca, GSoC 2017)
- ▶ get **substitutes from your neighbors** with Avahi
- ▶ search & **on-line doc of system services**
- ▶ *your project here*

Join us now!

Get yourself a sticker too!



`ludo@gnu.org`

`https://gnu.org/software/guix/`

Copyright © 2010, 2012–2017 Ludovic Courtès ludo@gnu.org.

GNU Guix logo, CC-BY-SA 4.0, <http://gnu.org/s/guix/graphics>

Copyright of other images included in this document is held by their respective owners.

This work is licensed under the **Creative Commons Attribution-Share Alike 3.0** License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-sa/3.0/> or send a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California, 94105, USA.

At your option, you may instead copy, distribute and/or modify this document under the terms of the **GNU Free Documentation License, Version 1.3 or any later version** published by the Free Software Foundation; with no Invariant Sections, no Front-Cover Texts, and no Back-Cover Texts. A copy of the license is available at <http://www.gnu.org/licenses/gfdl.html>.

The source of this document is available from <http://git.sv.gnu.org/cgiit/guix/maintenance.git>.